REMARKS

Claims 1-19 are pending. Claims 2 and 9-19 have been withdrawn as being directed to a non-elected invention.

Claims 1 and 3-8 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement and the enablement requirement, and under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention. These rejections are addressed below.

Claim amendments

Claim 1 is amended to recite a method "that reduces production of a 4-hydroxy-2-alkylquinoline (HAQ) molecule, 4-hydroxy-2-heptylquinoline (HHQ) molecule, or a derivative or precursor thereof" and to replace the last "wherein" clause with a step (c) for "comparing the production of said molecule in step (b) relative to production of said molecule by a cell not contacted with said compound, thereby identifying said compound that reduces production of said HAQ molecule, HHQ molecule, or a derivative or precursor thereof." Support for these amendments is found, for example, in original claim 1 and page 7, lines 15-31, of the as-filed specification. Claims 1 and 6 are amended to replace "pathogenic cell" with "*Pseudomonas* cell." Support for this amendment is found, for example, in original claims 6 and 7 and page 22, lines 30-31. No new matter is added by these amendments.

Rejection under 35 U.S.C. § 112, first paragraph: written description

Claims 1 and 3-8 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. The Examiner asserts that the specification fails to describe which pathogens use the anthranilic acid pathway. In addition, the Examiner asserts that the specification is silent with regard to what molecules are encompassed by the terms "derivative" and "precursor." Applicants respectfully traverse this rejection as applied to the presently amended claims.

As amended, claims 1 and 3-8 comply with the written description requirement. For completeness, applicants address the issues raised by the Examiner. First, applicants have amended claim 1 to require a *Pseudomonas* cell, and the specification sufficiently describes the anthranilic acid pathway in *Pseudomonas*. For example, this pathway in *Pseudomonas aeruginosa* is described in Figure 5 and page 23, line 25 to page 25, line 11 of the as-filed specification. In addition, this amendment will not require a new search, as the Examiner performed an EAST search of "Pseudomonas" in combination with "anthranilic acid" on March 24, 2010.

Second, contrary to the Examiner's assertion, the specification describes numerous derivatives and precursors of HAQ and HHQ molecules. As an initial matter, HAQ is a family of signaling molecules that are 4-hydroxy-2-alkylquinolines (see, e.g., page 15, lines 4-7), and HHQ is a congener of a HAQ having an R group of heptyl or C_7H_{15} (see, e.g., page 15, lines 14-15, and series A in Figure 2). Exemplary derivatives and precursors are provided in Figures 2 and 5. Figure 2, as described on page 21, lines 10-

16, provides numerous derivatives and precursors of a HAQ molecule, where R is a saturated C_5 to C_{11} alkyl group (i.e., in series A-C), R' is an unsaturated C_7 to C_{11} alkyl group (i.e., in series D and E), hydroxyl is optionally present at the position 3 of the ring (i.e., in series B), or an N-oxide group is optionally present on the nitrogen of the ring (i.e., in series C and E). Furthermore, the specification describes the relationship between series A-E in the anthranilic acid pathway, where series A are probably precursors to series B compounds and the N-oxide derivatives of series C and E are likely end-products in a branched pathway (see, e.g., page 24, lines 1-2 and 20-21, and page 28, lines 20-23). Figure 5, as described on page 23, line 25 to page 25, line 11, also provides numerous derivatives and precursors that are present in the anthranilic acid pathway. For example, anthranilic acid, chorismic acid,  , and  are precursors of HHQ, HQNO, and PQS; and HHQ, in turn, is a precursor of PQS (see Figure 5).

Accordingly, presently amended claims 1 and 3-8 require a *Pseudomonas* cell and HAQ and HHQ molecules, or derivatives or precursors thereof, and these terms are clearly described in the specification to allow one of skill in the art to understand the claimed invention. For these reasons, this basis for the rejection of claims 1 and 3-8 can now be withdrawn.

Rejection under 35 U.S.C. § 112, first paragraph: enablement

Claims 1 and 3-8 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the enablement requirement. The Examiner asserts that the specification fails to describe which pathogens use the anthranilic acid pathway and what molecules are encompassed by the terms "derivative" and "precursor." The Examiner then asserts that the claimed compositions do not have any structural or functional limitations. Applicants respectfully traverse this rejection as applied to the presently amended claims.

The claimed subject matter, as a whole, is sufficiently described in the specification to allow one of skill in the art to make and use the invention, as required under M.P.E.P. §§ 2164.01 and 2164.08. Presently amended claim 1 requires (a) contacting a *Pseudomonas* cell with a test compound, (b) measuring production of a HAQ molecule, HHQ molecule, or a derivative or precursor thereof, and (c) comparing the production of a molecule relative to a control (i.e., a cell not contacted with said compound). To practice the claimed invention, one skilled in the art must carry out steps (a)-(c); and each step is sufficiently described in the specification. As described above, the specification provides the anthranilic pathway in *Pseudomonas aeruginosa* having HAQ and HHQ molecules, or a derivative or precursor thereof. In addition, the specification provides numerous test compounds and libraries of compounds that can be used to contact a cell, such as a peptide, a polypeptide, a synthetic organic molecule, a naturally occurring organic molecule, a nucleic acid molecule, a peptide nucleic acid molecule, and a component or derivative thereof (e.g., page 8, lines 1-5, and page 19,

line 20 to page 20, line 19); various structures of exemplary HAQ and HHQ molecules, as well as precursors and derivatives thereof (e.g., Figures 2 and 5); numerous types of screening protocols and chromatography-based techniques to measure production of a molecule (e.g., page 16, line 1 to page 19, line 9, and page 20, line 21 to page 21, line 33); and exemplary levels of reduced production as compared to an untreated control (e.g., page 7, lines 19-22). Based on this disclosure, one skilled in the art would know which test compounds can be used and which HHQ, HAQ, precursors, and derivatives can be measured and, thus, practice the claimed method for identifying a compound without undue experimentation. For these reasons, applicants request that the enablement rejection of claims 1 and 3-8 be withdrawn.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1 and 3-8 are rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention. The Examiner asserts that the claims omit a comparison step and are not limited to identifying a compound that reduces the production of a given molecule. In response, applicants have amended the preamble of claim 1 to recite a method for identifying a compound that reduces production of a 4-hydroxy-2-alkylquinoline (HAQ) molecule, 4-hydroxy-2-heptylquinoline (HHQ) molecule, or a derivative or precursor thereof and have replaced the last "wherein" clause with a comparison step in (c). In view of the present claim amendments, this basis of this rejection should be withdrawn.

CONCLUSION

Applicants submit that that the claims are in condition for allowance, and such action is respectfully requested.

Enclosed is a Petition to extend the period for replying to the Office action for three months, to and including June 9, 2011, and authorization to deduct the required extension fee from Deposit Account No. 03-2095.

If there are any additional charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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